<div style="text-align:left; writing-mode: vertical;">**United States District Court**
For the Northern District of California</div>

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6   **IN THE UNITED STATES DISTRICT COURT**

7   **FOR THE NORTHERN DISTRICT OF CALIFORNIA**

8
3COM CORP,   **No C 03-2177 VRW**
9
          Plaintiff,
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              v
11
D-LINK SYSTEMS, INC,
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          Defendant,
13
          and
14
REALTEK SEMICONDUCTOR CORP,
15
          Intervenor.
16 _____

17 **3COM CORP,**

18   **Plaintiff,**   **No C 05-0098 VRW**

19   **v**   **ORDER**

20 **D-LINK SYSTEMS, INC,**

21   **Defendant.**
    _____/
22

23

24   On April 14, 2006, the court held a claim construction

25 hearing pursuant to <u>Markman v Westview Instruments, Inc</u>, 517 US 370

26 (1996). Based on the parties' arguments at the hearing and their

27 submissions, the court issues the following claim construction

28 order, which applies to both of the above-captioned matters.

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1   In the 03-2177 action, plaintiff 3Com Corporation (3Com)

2 originally asserted six network-interface-technology patents

3 against defendant D-Link Systems, Inc (D-Link) and intervening-

4 defendant Realtek Semiconductor Corporation (Realtek): United

5 States patents 5,307,459, 5,434,872, 5,732,094, 6,327,625,

6 6,526,446 and 6,570,884. 3Com and D-Link have since settled claims

7 in the 03-2177 action, leaving as the Realtek sole defendant in

8 that action. In the 05-0098 action, 3Com asserts the '625 and '884

9 patents against D-Link. Claims in the '625 patent were construed

10 in conjunction with summary judgement in a prior order. Doc #206

11 (05-0098) at 6-15.

12   As the court writes principally for the parties, it will

13 not discuss the details of the inventions or define terms well-

14 known to those skilled in the art, except as is necessary to

15 construe the claims of the patents.

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17   I

18   The construction of patent claims is a question of law to

19 be determined by the court. <u>Markman</u>, 517 US 370. The goal of

20 claim construction is "to interpret what the patentee meant by a

21 particular term or phrase in a claim." <u>Renishaw PLC v Marposs</u>

22 <u>Societa per Azioni</u>, 158 F3d 1243, 1249 (Fed Cir 1998). In

23 determining what a patentee meant by a term or phrase, the court

24 looks first to the claim itself:

25   The claims of the patent provide the concise formal
           definition of the invention. They are the numbered
26   paragraphs which "particularly [point] out and
           distinctly [claim] the subject matter which the
27   applicant regards as his invention." 35 USC § 112.
           It is to these wordings that one must look to
28   determine whether there has been infringement.

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> Courts can neither broaden nor narrow the claims to give the patentee something different [from] what he has set forth. No matter how great the temptations of fairness or policy making, courts do not rework claims. They only interpret them.

4   E I Du Pont de Nemours & Co v Phillips Petroleum Co, 849 F2d 1430,

5   1433 (Fed Cir 1988).

6   "[T]he claims define the scope of the right to exclude;

7   the claim construction inquiry, therefore, begins and ends in all

8   cases with the actual words of the claim." Renishaw, 158 F3d at

9   1248. "The words used in the claims are examined through the

10 viewing glass of a person skilled in the art." Brookhill-Wilk 1,

11 LLC v Intuitive Surgical, Inc, 326 F3d 1215, 1220 (Fed Cir 2003).

12 The court may, if necessary, consult a variety of sources to

13 determine the ordinary and customary meaning of a claim term,

14 including "the words of the claims themselves, the remainder of the

15 specification, the prosecution history and extrinsic evidence

16 concerning relevant scientific principles, the meaning of technical

17 terms and the state of the art." Innova/Pure Water, Inc v Safari

18 Water Filtration Systems, Inc, 381 F3d 1111, 1116 (Fed Cir 2004).

19   The court begins its construction of claim terms by

20 consulting intrinsic evidence of the meaning of disputed claim

21 terms, which includes the claims, other portions of the

22 specification and the prosecution history. Lacks Industries, Inc v

23 McKechnie Vehicle Components USA, Inc, 322 F3d 1335, 1341 (Fed Cir

24 2003). "If upon examination of this intrinsic evidence the meaning

25 of the claim language is sufficiently clear, resort to 'extrinsic'

26 evidence, such as treatises and technical references, as well as

27 expert testimony when appropriate, should not be necessary."

28 Digital Biometrics, Inc, v Identix, Inc, 149 F3d 1335, 1344 (Fed

Cir 1998). "[I]f after consideration of the intrinsic evidence

there remains doubt as to the exact meaning of the claim terms,

consideration of extrinsic evidence may be necessary to determine

the proper construction." Id. Although extrinsic evidence such as

expert and inventor testimony, dictionaries and learned treatises

can shed useful light on the relevant art, extrinsic evidence is

"less significant than the intrinsic record in determining 'the

legally operative meaning of claim language.'" Phillips v AWH

Corp, 415 F3d 1303, 1317 (Fed Cir 2005)(en banc), quoting C R Bard,

Inc v United States Surgical Corp, 388 F3d 858, 862 (Fed Cir 2004).

"[A] court may constrict the ordinary meaning of a claim

term in at least one of four ways": (1) "if the patentee acted as

his own lexicographer and clearly set forth a definition of the

disputed claim in either the specification or prosecution history;"

(2) "if the intrinsic evidence shows that the patentee

distinguished that term from prior art on the basis of a particular

embodiment, expressly disclaimed subject matter or described a

particular embodiment as important to the invention;" (3) "if the

term chosen by the patentee so deprives the claim of clarity as to

require resort to other intrinsic evidence for a definite meaning;"

and (4) "if the patentee phrased the claim in step- or means-plus-

function format," then "a claim term will cover nothing more than

the corresponding structure or step disclosed in the specification,

as well as equivalents thereto." CCS Fitness, Inc v Brunswick

Corp, 288 F3d 1359, 1366-67 (Fed Cir 2002) (internal citations and

quotation marks omitted).

Limitations from the specification, such as from the

preferred embodiment, cannot be read into the claims absent an

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1   express intention to do so. <u>Teleflex, Inc v Ficosa North America</u>

2   <u>Corp</u>, 299 F3d 1313, 1326 (Fed Cir 2002) ("The claims must be read

3   in view of the specification, but limitations from the

4   specification are not to be read into the claims."). And "a

5   construction that excludes a preferred embodiment 'is rarely, if

6   ever, correct.'" <u>C R Bard, Inc v United States Surgical Corp</u>, 388

7   F3d 858, 865 (Fed Cir 2004), quoting <u>Vitronics Corp v Conceptronic,</u>

8   <u>Inc</u>, 90 F3d 1576, 1583 (Fed Cir 1996). Conversely:

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> Where the specification makes clear that the
> invention does not include a particular
> feature, that feature is deemed to be outside
> the reach of the claims of the patent, even
> though the language of the claims, read without
> reference to the specification, might be
> considered broad enough to encompass the
> feature in question.

<u>SciMed Life Systems, Inc v Advanced Cardiovascular Systems, Inc</u>,

14   242 F3d 1337, 1341 (Fed Cir 2001).

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16   "[C]laims should be construed to preserve their validity"

17   only in "cases in which 'the court concludes, after applying all

18   the available tools of claim construction, that the claim is still

19   ambiguous.'" <u>Phillips</u>, 415 F3d at 1327, quoting <u>Liebel-Flarsheim</u>

20   <u>Co v Medrad, Inc</u>, 358 F3d 898, 911 (Fed Cir 2004).

21   With these legal principles in mind, the court construes

22   the disputed claim language of the patents.

23   *//*

24   *//*

25   *//*

26   *//*

27   *//*

28   *//*

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III

Every patent in this litigation relates to network-interface technology, which facilitates the transfer of data between a host device (such as a personal computer) and a network. Data transferred between the host and a network must first be formatted into data "packets" or "frames," which are bits of data that have been packaged for transmission according to standardized network protocols. Network-interface devices that are the subject of the patents contain buffer memory for temporarily storing packets that are being received from the host and transmitted to a network (or vice versa). A particular type of buffer memory that receives, stores and transmits data packets in the order they are received from the host or network is known as a "first-in, first-out" or "FIFO" buffer.

A

The '872 and '094 Patents

The court finds it appropriate to consider these patents together because the '094 patent is a continuation of the '872 patent and because the same terms are disputed in each of these patents. Since the '872 and the '094 patents have nearly identical specifications, the court will cite only the '872 patent to avoid redundancy. The '872 and '094 patents disclose a network-interface with improved buffer memory.

The prior art includes two types of buffers: transmit buffers and FIFO buffers. Transmit buffers can efficiently handle transmission failures because if transfer of a frame fails then "data may be retained in the transmit data buffer until the sending

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1 system initiates a second attempt to transmit the frame." '872

2 patent at 1:44-47. Transmit buffers, however, "suffer[] from the

3 disadvantage that transmission of a frame is delayed until the

4 entire frame has been downloaded into the buffer." Id at 1:58-61.

5 FIFO buffers have relatively high throughput because a data frame

6 can be transmitted out even as it is being received in, but the

7 "data in FIFOs cannot be retained and reused" in case of a

8 transmission failure. Id at 1:49-50. The goal of both inventions

9 is "to provide the advantages of a transmit data buffer, while

10 maintaining the communications throughput available from the

11 simpler FIFO based systems." Id at 2:7-10. The '872 and '094

12 patents attempt to achieve the advantages of both transmit buffers

13 and FIFO buffers by allowing high throughput as well as efficient

14 retransmission of frames.

15

16 1.   "buffer" or "buffer memory"

17   These terms are located in several claims in both the

18 '872 patent and the '094 patent. Doc #81 at 13-14. The parties

19 dispute whether these terms should be ascribed their ordinary

20 meaning. 3Com proposes the dictionary-derived construction "a

21 memory for temporary storage of data." Id at 13, 19. Realtek

22 proposes the construction "a memory that (1) stores frame data such

23 that the frame data can be retrieved independently of the order in

24 which the frame data were stored and the frame data can always be

25 retained and reused; and (2) is not a first-in-first-out (FIFO)

26 system." Id at 13-14, 19. The primary issue before the court is

27 whether the specification rebuts the presumption that the terms

28 should be ascribed their ordinary meaning.

7

1   Realtek contends that the patentee disclaimed FIFO-based

2 systems in the specification. Specifically, Realtek argues that

3 the specification "explains the shortcomings and problems of prior

4 FIFO-based systems." Doc #333 at 12. An inventor "may use the

5 specification [intentionally] to [] disclaim or disavow the broad

6 scope of a claim. However, this intention must be clear." Conoco,

7 Inc v Energy & Environmental Intern, L C, 460 F3d 1349, 1357 (Fed

8 Cir 2006)(internal citations omitted). While the specification

9 does highlight the shortcomings of FIFO-based systems, the

10 specification also lauds the "communications throughput available

11 from the simpler FIFO-based systems." '872 patent at 2:8-10. The

12 specification's mix of praise and criticism is not a "clear

13 disavowal" of FIFO technology.

14   Realtek further argues that prosecution history supports

15 its proposed construction. Doc #333 (03-2177) at 15-16. Realtek

16 relies on a statement differentiating the Firoozmand reference from

17 the claimed invention. 3Com stated that the claimed application

18 described a "much more sophisticated control environment than that

19 required by the FDDI system of Firoozmand." Doc #339 (Gutman decl)

20 (03-2177) Ex F at 5. Realtek argues that this statement

21 distinguishes the claimed invention from a "FIFO-based scheme."

22 Doc #333 (03-2177) at 16. 3Com argues that this statement, read in

23 context, describes a "CSMA/CD network (such as Ethernet) as more

24 sophisticated than a token ring network" and does not address "the

25 relative sophistication of a FIFO buffer." Doc #340 (03-2177) at

26 8. The paragraph in question discusses details related to CSMA/CD

27 networks such as frame transmission, collisions and backoff. Doc

28 #339 (Gutman decl) (03-2177) Ex F at 5. Viewed in context, the

court finds that this statement is unrelated to buffer or buffer memory and has no bearing on construction of the terms "buffer" or "buffer memory."

In addition, Realtek points to the "Vulcan" document the patentee used to "swear behind" the Firoozmand reference. Doc #333 (03-2177) at 16-17. Realtek concedes that the Vulcan document "shows that the inventors once contemplated using the prior FIFO-based technique of transmitting early a packet once the amount of data in [FIFO] reached a threshold." Doc #333 (03-2177) at 17. According to Realtek, "understanding that the FIFO disclosed in the Firoozmand and Vulcan prior art could not retain and reuse data frames, the inventors replaced the FIFO with a transmit buffer in order to avoid the major disadvantage of a FIFO." Id. As 3Com points out, however, the purpose of "swearing behind" was to show an earlier invention date. Doc #340 (03-2177) at 8. If the Vulcan document showed a different invention than the claimed invention, the Vulcan document could not be used to prove an earlier date of invention. Rather than disclaiming FIFO-based devices, the prosecution history confirms that use of FIFO buffers in the claimed invention was specifically contemplated by the patentee.

Realtek argues that construing the claims as 3Com suggests would render the claims invalid as reading on prior art or being unsupported by written description. Doc #333 (03-2177) at 14. Realtek further argues that "[o]ne of the well-established maxims of claim construction is that the claims should not be so broadly interpreted as to read on prior art." Id. But the court only applies this claim construction maxim if the disputed claim term is ambiguous.

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> While we have acknowledged the maxim that
> claims should be construed to preserve their
> validity, we have not applied that principle
> broadly, and we have certainly not endorsed a
> regime in which validity analysis is a regular
> component of claim construction. Instead, we
> have limited the maxim to cases in which "the
> court concludes, after applying all the
> available tools of claim construction, that the
> claim is still ambiguous."

Phillips, 415 F3d at 1327, quoting Liebel-Flarsheim, 358 F3d at

911. The claim terms at issue are not ambiguous. Both the plain

meaning and the prosecution history support the construction that

3Com proposes.

         For the reasons stated above, the court adopts 3Com's

proposed construction "a memory for temporary storage of data."

2.   "falls behind" or "underrun"

         The parties initially disputed the meaning of these terms

but agreed to a mutually acceptable construction at the Markman

hearing. Doc #360 (03-2177) at 45:22-25; Doc #340 at 15. The

court adopts "a condition in which the receiving of data into the

buffer is not keeping up with the transmitting of data out of the

buffer."

3.   "optimizing the threshold"

         This term is found in claim ten of the '872 patent and

claim twenty-one of the '094 patent. '872 patent at 31:36-37; '094

patent at 30:32. 3Com proposes "attempting to make the

transmission of frames more efficient." Doc #81 (05-0098) at 17,

23. This proposal is insufficient because it fails to give effect

to the "threshold" portion of the term under construction. Realtek

adds "dynamically" and "by the host system" to the otherwise

appropriate construction "dynamically changing the threshold value

by the host system to make it as perfect, effective or functional

as possible." Id at 17, 23.

Realtek contends that "dynamically" is required because

"using the status information as feedback for the threshold value

would be thwarted" if "altering the threshold could be a one-time

event." Doc #333 (03-2177) at 24. Realtek, however, does not

argue that altering the threshold a single time would render either

claim ten of the '872 patent or claim twenty-one of the '094 patent

inoperative. Nor does the specification require multiple

alterations, although 3Com could have easily drafted a claim that

did require multiple alterations of the threshold value. A person

of ordinary skill in the art would conclude the patentee did not

intend "optimizing the threshold" to mean altering the threshold

value multiple times.

Realtek also includes the term "by the host system,"

pointing out that the status information is "for use by the host

system." Doc #333 (03-2177) at 24. Again, Realtek does not argue

the claims in question are inoperable without this limitation, nor

does the specification require usage by the host system. This

argument is similarly unpersuasive.

3Com objects to Realtek's language as too "absolutist."

Doc #340 (03-2177) at 14. 3Com argues that "each optimization step

is simply an attempt to make the transmission of frames more

efficient rather than a dynamic change * * * to make it as perfect,

effective or functional as possible." Id at 15 (quotations

omitted). When the term is viewed in context, there is no

1 practical difference between these positions. More fully, claim

2 ten recites "feedback for optimizing the threshold." The context

3 of the term clarifies that "optimizing" merely indicates a

4 direction of progress and that perfection need not be achieved. It

5 is irrelevant whether the purpose of the feedback is to make

6 transmission "more efficient" or to "make it as perfect, effective

7 or functional as possible." Both formulations produce the same

8 effect, so 3Com's "absolutist" fears are unjustified. 3Com's

9 objection to Realtek's proposal is unpersuasive.

10 Aside from the issues noted above, the court finds D-

11 Link's proposal otherwise acceptable. Accordingly, the court

12 adopts the modified construction, "changing the threshold value to

13 make it as perfect, effective or functional as possible."

14

15 4.   "altering the threshold"

16 This term is offered for construction only for purposes

17 of the '094 patent and appears in claim forty-seven. '094 patent

18 at 32:58. The dispute centers not on the phrase as a whole but on

19 the term "altering." 3Com proposes "changing." Doc #81 (03-2177)

20 at 26. Realtek proposes "dynamically changing." Id.

21 As discussed above, Realtek suggests "dynamically" to

22 capture the repeated nature of the operation. Doc #333 (03-2177)

23 at 23-25. Although the specification contemplates practicing the

24 method multiple times, there is no evidence that the specification

25 requires practicing the method multiples times or that the method

26 is inoperative if practiced only once.

27 Because Realtek's construction is flawed and 3Com has not

28 provided any reason why this seemingly simple term must be

12

1   construed, the court declines to construe the term "altering."

2

3   5.   "means, coupled with the buffer memory and including a host
           system alterable threshold store for storing a threshold
4   value, for monitoring the transferring of data of a frame to
           the buffer memory to make a threshold determination of an
5   amount of data of the frame transferred to the buffer memory"

6   This term appears only in claim ten of the of the '872

7   patent. '872 patent at 31:16-22. The parties dispute whether

8   "coupled with the buffer memory and including a host system

9   alterable threshold store for storing a threshold value" should be

10 interpreted according to 35 USC §112(6). 3Com again argues that

11 §112(6) should not apply to this portion of the limitation. Doc

12 #81 (05-0098) at 53-54. Realtek again argues that §112(6) should

13 apply to the entire limitation.

14   Paragraph six of §112 applies to functional language

15 "without the recital of structure, material, or acts in support

16 thereof." 35 USC § 112. While the claim is somewhat unusual in

17 form, it does appear that the language set off by commas does

18 define structure. The terms "coupled," "buffer memory" and

19 "alterable threshold store" are all structural rather than

20 functional elements. Accordingly, the court holds that "coupled

21 with the buffer memory and including a host system alterable

22 threshold store for storing a threshold value" should not be

23 interpreted according to §112(6).

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B

The '459 Patent

The '459 patent discloses a "Network Adapter with Host Indication Optimization." The parties dispute four terms in this patent, all of which appear in independent claim 1, which states in full (with the disputed terms underlined):

> An apparatus for transferring a data frame between a network transceiver, coupled with a network, and a host system which includes a host processor and host memory, the apparatus generating an <u>indication signal</u> to the host processor responsive to the transfer of the data frame, with the host processor responding to the <u>indication signal</u> after a period of time, comprising:
>
> a <u>buffer memory</u> for storing the data frame;
>
> network interface logic for transferring the data frame between the network transceiver and the <u>buffer memory</u>;
>
> host interface logic for transferring the data frame between the host system and the <u>buffer memory</u>;
>
> threshold logic for allowing the period of time for the host processor to respond to the <u>indication signal</u> to occur during the transferring of the data frame, wherein the threshold logic includes,
>
> a counter, coupled to the <u>buffer memory</u>, for counting the amount of data transferred to or from the <u>buffer memory</u>;
>
> an <u>alterable storage location</u> containing a threshold value; and
>
> <u>means for comparing the counter to the threshold value in the alterable storage location and generating an indication signal to the host processor responsive to a comparison of the counter and the alterable storage location.</u>

'459 patent at 42:42-68.

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1.   "buffer" or "buffer memory"

Both parties assert that this term should be given the same construction as for the '872 and '094 patents. Realtek argues that the '459 patent "includes the same transmit buffer" and "operates in the same way in the '872 and '094 patents." Doc #333 at 17. 3Com proposes "a memory for temporary storage of data," the same construction the court applied to the '872 and '094 patents. Doc #81 (05-0098) at 3; see section III A, supra. The court adopts the same construction as the '872 and '094 patents, "a memory for temporary storage of data."

2.   "alterable storage location"

The parties dispute whether this term should be ascribed its ordinary meaning. 3Com offers the dictionary-derived construction "a storage location whose value is changeable." Doc #81 (05-0098) at 1. Realtek argues that "alterable" does not mean simply "changeable," but rather "<u>dynamically</u> changeable." Doc #333 (03-2177) at 19-21. Realtek thus proposes the construction "a storage location whose value is dynamically changeable." Doc #81 (05-0098) at 1.

Realtek once again suggests "dynamically" to capture the repeated nature of the operation. For example, Realtek quotes a passage in the specification that status information "may be used by the host processor as feedback for optimizing the threshold value in the alterable storage location." Doc #333 (03-2177) at 20. Realtek, however, fails to show that repeated nature is <u>required</u> by the specification. The word "may" in the quoted passage undermines Realtek's argument by declaring that usage of

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1   the status information is optional. Accordingly, the court

2   declines to add "dynamically" to the construction.

3   Realtek argues that "claims should not be interpreted so

4   broadly as to read on prior art." Doc #333 (03-2177) at 21. The

5   Federal Circuit has explicitly "limited the maxim to cases in which

6   'the court concludes, after applying all the available tools of

7   claim construction, that the claim is still ambiguous.'" <u>Phillips</u>,

8   415 F3d at 1327, quoting <u>Liebel-Flarsheim</u>, 358 F3d at 910. Claim

9   one is not ambiguous. Accordingly, the court adopts "storage

10 location whose value is changeable."

11

12 3.   "indication signal"

13   3Com proposes "a signal that indicates a subsequent

14 action, such as an interrupt." Doc #81 (05-0098) at 7. Realtek

15 proposes "a signal that is not an interrupt but may be used by the

16 host system to generate an interrupt." Id. The dispute revolves

17 around what the indication signal indicates.

18   In order to evaluate the parties' proposed constructions,

19 it is useful first to understand "interrupt." In the context of

20 computer technology, an interrupt is a "signal to a computer that

21 stops the execution of running program so that another action can

22 be performed." <u>American Heritage Dictionary of the English</u>

23 <u>Language</u> (4th ed 2000). It is clear from the specification of the

24 '459 patent that the patentee used the term interrupt in this

25 manner. See '459 patent at 1:49-54. With this ordinary meaning in

26 mind, the court turns to the language of the claims.

27   Realtek argues that claim five shows that "the indication

28 signal cannot be the interrupt signal; otherwise, the interrupt

1   signal of claim five would have no meaning."   Doc #333 (03-2177) at

2   18.   Claim five reads:

3   The apparatus of claim 1, wherein the network
         interface logic includes:
4
         control means for generating an interrupt
5   signal to the host processor responsive to
             the indication signal and posting status
6   information which may be used by the host
             processor as feedback for optimizing the
7   threshold value.

8   '459 patent at 43:31-38.   This language shows that the indication

9   signal and interrupt signal are different things.   Nothing about

10 this language, however, excludes the possibility that the

11 indication signal and interrupt signal could both be interrupts.

12 Accordingly, the court rejects Realtek's proposed construction.

13   3Com proposes "a signal that indicates a subsequent

14 action, such as an interrupt."   Doc #81 (05-0098) at 7.   The

15 intrinsic evidence shows not only that the indication signal

16 heralds the arrival of a subsequent action, but that this action is

17 an interrupt.   Claims five and twenty-two recite "generating an

18 interrupt signal to the host processor responsive to the indication

19 signal."   '459 patent at 43:34-46; 44:46-69.   Claim thirty-four

20 includes an "indication signal, which reduces host processor

21 interrupt latency."   Id at 45:62-63.   Claim forty-four, fifty and

22 fifty-two recite "generating an interrupt signal to the host

23 processor, responsive to the early transfer indication signal,

24 which reduces host processor interrupt latency."   Id at 47:35-38;

25 48:31-34.   In addition, the specification discloses that it is

26 "desirable to provide a network adapter with an optimized

27 indication signal * * * which reduces interrupt latency."   Id at

28 2:22-25.

17

1   Intrinsic evidence demonstrates a sole purpose for the

2 indication signal: indicating the arrival of a subsequent

3 interrupt. Accordingly, the court adopts the construction "a

4 signal that indicates a subsequent interrupt."

5

6 4.   "means for comparing the counter to the threshold value in the
        alterable storage location and generating an indication signal
7   to the host processor responsive to a comparison of the
        counter and the alterable storage location"

8

9   The parties dispute whether "generating an indication

10 signal to the host processor responsive to a comparison of the

11 counter and the alterable storage location" should be construed as

12 a "means-plus-function" limitation under 35 USC §112(6). 3Com

13 contends that "generating an indication signal to the host

14 processor responsive to a comparison of the counter and the

15 alterable storage location" should not be governed by §112(6). Doc

16 #81 (05-0098) at 53. Realtek contends that §112(6) should apply to

17 the entire limitation. Id.

18   The court finds that §112(6) applies to "generating" for

19 two reasons. First, "generating" is a function, not a structure.

20 Paragraph six of §112 applies to functional language "without the

21 recital of structure, material, or acts in support thereof." In

22 the absence of defined structure, "generating" must fall under

23 §112(6). Second, the grammatical structure of the claim suggests

24 generating is to be considered part of single element. Patents,

25 including the '459 patent, are structured with a series of elements

26 separated by semicolons. The patentee could have inserted a

27 semicolon before "generating" to indicate the start of a new

28 element. While not dispositive, the absence of a semicolon

18

1 suggests that a single limitation prefaced by "means" was intended.

2 "A claim limitation that actually uses the word 'means' invokes a

3 rebuttable presumption that § 112(6) applies." <u>CCS</u>, 288 F3d at

4 1369. Accordingly, the court finds that §112(6) applies to the

5 entire term identified above.

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7   C

8   <u>The '446 Patent</u>

9   The '446 patent relates to an improved network

10 controller. Network controllers send and receive data over a

11 computer network using standardized network protocols.

12   Modern network protocols, such as Ethernet, allow

13 participants of a network to send data over the network in bundles

14 known as "frames." These frames represent discrete bundles of data

15 transmitted over a physical wire connection. Frames are often

16 limited in size; network transmissions that exceed this size must

17 be broken up into multiple frames through a process known as

18 segmentation. The '446 patent teaches an improved approach to

19 segmentation.

20   One method of segmentation is to allow the central

21 processing unit (CPU) of the host computer to perform the

22 segmentation in main memory. '446 patent at 1:38-63. This scheme

23 requires the CPU to break a larger chunk of data into smaller

24 chunks for transmission. The advantage of this scheme is that the

25 network interface can be very simple and inexpensive. The

26 disadvantage of this approach is that the segmentation process

27 becomes a bottleneck to performance, preventing high network

28 speeds. Another method of segmentation is to allow the network

1   interface to perform the segmentation in a network buffer. Id at

2   1:64-2:14. The '446 patent discloses an "improved method and

3   system for providing significantly improved data throughput of a

4   network connection which is used with a high speed network." Id at

5   2:22-25.

6   The parties dispute three terms in this patent, two of

7   which appear in independent claim 1, which states in full (with the

8   disputed terms underlined):

> A circuit for implementing transmission control protocol
> segmentation, said circuit comprising:
>
>   a segment circuit coupled to receive a descriptor
> from a host device which corresponds to data, said
> segmentation circuit utilizes said descriptor to generate
> a <u>frame segment descriptor</u>;
>
>   a <u>data download circuit</u> coupled to said segmentation
> circuit to receive said <u>frame segment descriptor</u>, said
> <u>data download circuit</u> retrieves said data from a memory;
> and
>
>   a medium access control circuit coupled to said <u>data
> download circuit</u> to receive said data in a frame segment.

17 '446 patent at 14:13-22. The remaining disputed term, "a

18 descriptor signal which corresponds to data stored within memory,"

19 appears in claim 26. Id at 14:16-17.

20

21 1.   "frame segment descriptor"

22   3Com's proposal of "a descriptor for a frame segment" is

23 of little help, merely reordering the words of the term to be

24 construed. Doc #81 (05-0098) at 35. Realtek proposes "a

25 descriptor identifying where the corresponding segment is in the

26 host memory." Id.

27   Upon review of the intrinsic evidence, Realtek's proposal

28 appears to describe the frame segment descriptor accurately. "The

1   segmentation circuit utilizes the descriptor to generate other

2   descriptors that describe each frame segment." '446 patent 2:29-

3   31.   This shows that the frame segment descriptors are created from

4   a higher level descriptor.   "[D]escriptor queue 206 serves an empty

5   flag along with the stored descriptors to TCP segmentation state

6   machine 208." '446 patent 6:48-50.   If the descriptor must be

7   segmented into frames, the "TCP segmentation state machine 208

8   creates another set of descriptors wherein each descriptor

9   describes a fragment or a segment of the data file." '446 patent

10 6:59-61.   Although not described explicitly as "frame segment

11 descriptors" the "set of descriptors" mentioned above are created

12 from higher level descriptors served to the TCP segmentation state

13 machine and are created only when segmentation into frames is

14 required.   Accordingly, this "set of descriptors" must be a set of

15 "frame segment descriptors."   Each frame segment descriptor

16 "describes a fragment or segment of the data file." '446 patent

17 6:60-61.   The frame segment descriptors include "pointers to where

18 the data file (payload) is stored within host memory." '446 patent

19 7:4-5.   Because the intrinsic evidence is consistent with Realtek's

20 proposal, the court adopts "a descriptor identifying where the

21 corresponding segment is in the host memory."

22

23 2.   "data download circuit"

24   3Com proposes "a circuit that retrieves data from

25 memory."   Doc #81 (05-0098) at 31.   Realtek proposes "the circuitry

26 that downloads data corresponding to the frame segment descriptor."

27 Id.   The court looks to intrinsic evidence to ascertain the

28 meaning.

1   The specification discloses that the "data download

2 circuit [is] coupled to the segmentation circuit to receive the

3 frame segment descriptors." '446 patent at 2:31-33. The

4 specification also discloses that the "data download circuit uses

5 the frame segment descriptor to retrieve the data from memory."

6 '446 patent at 10:60-61. Given this evidence, a person of ordinary

7 skill in the art would interpret the coined term "data download

8 circuit" to refer to a structure that downloads data corresponding

9 to the frame segment descriptor.

10   3Com objects to Realtek's narrow proposed construction

11 because "sometimes the data download circuit downloads data that

12 corresponds to descriptors that are not frame segment descriptors.

13 Doc #340 at 19. But claim 26 requires the data download circuit to

14 download data corresponding to a descriptor signal. '446 patent at

15 14:13-22. If the data download circuit downloads other data, it

16 would not be within the method described by claim 26. Accordingly,

17 the court adopts Realtek's proposed construction "the circuitry

18 that downloads data corresponding to the frame segment descriptor."

19

20 3.   "a descriptor signal which corresponds to data stored within
          memory"
21

22   3Com proposes "a descriptor signal which describes data

23 stored within host memory." Doc #81 (05-0098) at 34. Realtek

24 proposes "a signal indicating where the corresponding data is in

25 the host memory." Doc #81 (05-0098) at 34.

26   3Com argues that this term should be given its ordinary

27 meaning. Doc #340 (03-2177) at 15. Realtek, however, criticizes

28 3Com's proposal as "so broad as to be meaningless." Doc #333 (03-

22

1   2177) at 28. The court agrees that this definition is likely too

2   broad to be helpful.

3   Realtek argues that "the specification uses 'descriptor

4   signal' and 'descriptor' as synonyms." Doc #333 (03-2177) at 26.

5   Realtek compares claim twenty-six's statement of "using said

6   descriptor signal to generate a frame segment descriptor using a

7   segmentation circuit" with claim one's statement that "said

8   segmentation circuit utilizes said descriptor to generate a frame

9   segment descriptor." '446 patent at 12:51-53; 14:18-19. This

10 evidence shows that the "descriptor" and "descriptor signal" are

11 closely related. It is not, however, sufficient to show that the

12 "descriptor" and "descriptor signal" are synonyms.

13   3Com argues that the "first signal" from claim fifteen is

14 the same as the "descriptor signal." Doc #340 at 16. Given the

15 common designation "signal," the lack of any other signal and the

16 similar function performed by these two signals, the court finds

17 this argument is persuasive. Further, 3Com's position that the

18 "descriptor signal indicates where a descriptor is stored within

19 the host memory" is consistent with the observation above that the

20 descriptor signal and descriptor are closely related. '446 patent

21 at 13:35-36. 3Com's argument, however, appears to support

22 Realtek's proposal. If the "descriptor signal indicates where a

23 descriptor is stored within the host memory," the descriptor signal

24 surely corresponds to the descriptor. Further, the descriptor is

25 stored in host memory. Accordingly, the descriptor signal is "a

26 signal indicating where the corresponding data are in the host

27 memory."

28   The court is, therefore, in the strange position of

23

accepting 3Com's argument and Realtek's proposal. The court adopts

the construction "a signal indicating where the corresponding data

are in the host memory."

                                    E

                            The '884 Patent

        The '884 patent discloses a "Receive Filtering for

Communication Interface." The parties dispute three terms in this

patent, all of which appear in independent claim 1, which states in

full (with the disputed terms underlined):

> An interface in which packets are received having a
> plurality of variant formats, and transferred to a host
> system, compromising:
>
>   a first port on which incoming data is received at a
> data transfer rate;
>
>   <u>a buffer, coupled to the first port, storing
> received packets</u>;
>
>   a second port, coupled with the buffer, through
> which transfer of packets to the host is executed;
>
>   a packet filter, coupled to the first port, which
> identifies packets being stored in the buffer having one
> of the plurality of variant formats;
>
>   first logic coupled with the buffer and the second
> port, to transfer packets from the buffer to the second
> port; and
>
>   <u>second logic coupled with the buffer, and responsive
> to the packet filter to read and process data in the
> identified packets from the buffer, and to produce a data
> value dependant on contents of the packet prior to
> transfer of the identified packets to the second port by
> the first logic</u>.

'884 patent 11:8-27.

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24

United States District Court

For the Northern District of California

1.   "a buffer, coupled to the first port, storing received packets"

The parties dispute whether the '884 patent is limited to embodiments with a buffer large enough to store more than one packet at a time. 3Com offers the construction "a temporary storage device connected to the first port for received packets." Doc #81 (05-0098) at 37. D-Link propounds the construction "a temporary storage device connected to the first port that is of sufficient size to store a plurality of received packets." Id at 37-38. Realtek does not propose a specific construction. Id.

D-Link advances several considerations to support its construction. First, D-Link makes much of the fact that the '884 specification usually refers to packets in the plural. See, for example, '884 patent, 1:66-2:5 ("In particular, the present invention provides an interface that comprises the first port on which incoming data is received at the data transfer rate of the network, a buffer coupled to the port that stores received <u>packets</u>, and a second port coupled with the buffer through which transfer of <u>packets</u> to the host is executed." (emphasis added)). The specification's repeated references to "packets" in the plural are simply too tenuous a basis for limiting the scope of claim one. Whether this usage reflects the patentee's intent to claim only embodiments with buffers large enough to store multiple packets at once is, at the very best, ambiguous. For, as 3Com posits, it could be that "'packets' refers to the obvious fact that multiple packets will go through the claimed device, not to the capacity of a particular component therein to hold more than one packet at once." Doc #88 at 6.

25

1   Accordingly, the court adopts "a temporary storage device

2   connected to the first port for received packets."

3

4   2.   "read and process data in the identified packets from the
          buffer"

5   Only the meaning of "from the buffer" is in dispute.

6   3Com posits that this term requires no construction because it

7   means precisely what it says, "from the buffer." Doc #330 (03-

8   2177) at 28. D-Link and Realtek both propose "while the packets

9   are in the buffer." Doc #81 (05-0098) at 42. The dispute, then,

10   turns on whether data must be processed while in the buffer.

11   3Com argues that "from the buffer" needs no construction.

12   The word "from" in this claim shows that the buffer is the source

13   of the data to "read and process." 3Com's contends that the term

14   covers "a packet that was once in the buffer." Doc #340 at 22. D-

15   Link, however, argues that 3Com clearly disclaimed such a broad

16   meaning. D-Link relies upon 3Com's characterization of the

17   invention in the prosecution history that:

18
           The present invention is directed to a network
19   interface which has logic to process packets <u>in
           the frame buffer</u> that are identified by a
20   packet filter as having a particular format,
           before the packets are transferred to the host
21   processor to which they are addressed.

22   Doc #339 (Gutman decl) (03-2177) ex L at 2 (emphasis added).

23   Notably, this is a characterization of the invention as a whole and

24   not an attempt to distinguish a prior art reference. 3Com

25   identifies this statement as referring "to the packets from the

26   packet filter claim element." Doc #88 (05-0098) at 8. 3Com's

27   argument runs counter to the plain meaning of the statement. In

28   this statement, the packet filter merely identifies packets to be

26

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1 processed. The frame buffer, by contrast, is the disclosed

2 location where processing occurs. One of ordinary skill in the art

3 would read the characterization of the invention in the statement

4 above as a clear indication that the disclosed invention will

5 "process packets in the frame buffer."

6   In light of '884 patent's prosecution history, the court

7 construes "from the buffer" to mean "while the packets are in the

8 buffer."

9

10 3.   "second logic coupled with the buffer, and responsive to the
           packet filter to read and process data in the identified
11   packets from the buffer, and to produce a data value dependent
           on contents of the packet prior to transfer of the identified
12   packets to the second port by the first logic"

13   The dispute turns on the applicability of 35 USC §112(6)

14 to this limitation. D-Link contends that the term "logic" fails to

15 recite sufficient structure such that §112(6) should apply

16 notwithstanding the presumption against its applicability due to

17 the absence of the words "means for." Doc #78 (05-0098) at 23-24.

18   "A claim limitation that actually uses the word 'means'

19 invokes a rebuttable presumption that § 112(6) applies. By

20 contrast, a claim term that does not use 'means' will trigger the

21 rebuttable presumption that § 112(6) does not apply." CCS Fitness,

22 288 F3d at 1369 (internal citations omitted). This presumption is

23 "a strong one that is not readily overcome." Lighting World, Inc v

24 Birchwood Lighting, Inc, 382 F3d 1354, 1358 (Fed Cir 2004).

25   D-Link can overcome this presumption by showing that the

26 claim limitation "fails to recite sufficiently definite structure."

27 Apex Inc v Raritan Computer, Inc, 325 F3d 1364, 1372 (Fed Cir 2003)

28 (quotations omitted). This structure need not be "a single

1   well-defined structure." <u>Greenberg v Ethicon Endo-Surgery, Inc</u>, 91

2   F3d 1580, 1583 (Fed Cir 1996).

3   It is appropriate to consult dictionaries in connection

4   with this inquiry. <u>Linear Technology Corp v Impala Linear Corp</u>,

5   379 F3d 1311, 1320 (Fed Cir 2004); see also <u>Apex</u>, 325 F3d at 1373.

6   Technical dictionary definitions suggest that the term "logic"

7   itself connotes some structure. See <u>McGraw-Hill Dictionary of</u>

8   <u>Scientific and Technical Terms</u>, 1231 (6th ed 2003) (defining

9   "logic" as a "[g]eneral term for various types of gates, flip-flops

10   and other on/off circuits used to perform problem-solving functions

11   in a digital computer"); <u>IBM Dictionary of Computing</u>, 396 (10th ed

12   1994) (defining "logic" as "[t]he systematized interconnection of

13   digital switching functions, circuits or devices").

14   The Federal Circuit addressed the similar issue of

15   whether "circuit" conveys sufficient structure in <u>Linear</u>

16   <u>Technology</u>. 379 F3d 1311. The limitation at issue was "a first

17   circuit for monitoring a signal from the output terminal to

18   generate a first feedback signal." Id at 1320. The <u>Linear</u> court

19   found this limitation to recite "the respective circuit's operation

20   in sufficient detail to suggest structure to persons of ordinary

21   skill in the art." Id at 1320-21. The <u>Linear</u> court further stated

22   that when "structure-connoting term 'circuit' is coupled with a

23   description of the circuit's operation, sufficient structural

24   meaning generally will be conveyed to persons of ordinary skill in

25   the art." Id at 1320. Because of both the similarity between

26   "logic" and "circuit" and the similarity of the subsequent

27   functional language, the analysis in <u>Linear</u> is highly relevant to

28   the construction of claim one.

28

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1   The difference between the <u>Linear</u> term "circuitry" and

2 the "logic" term in this case is not significant. As previously

3 noted, several technical dictionary define "logic" in terms of

4 circuits. See <u>McGraw-Hill Dictionary of Scientific and Technical</u>

5 <u>Terms</u>, 1231 (6th ed 2003) (defining "logic" as a "[g]eneral term

6 for various types of gates, flip-flops, and other on/off circuits

7 used to perform problem-solving functions in a digital computer");

8 <u>IBM Dictionary of Computing</u>, 396 (10th ed 1994) (defining "logic"

9 as "[t]he systematized interconnection of digital switching

10 functions, circuits, or devices").

11   In addition, there is no significant difference between

12 the additional functional language. In the <u>Linear</u> claim, the

13 circuitry is "for monitoring a signal from the output terminal to

14 generate a first feedback signal." Claim one states that the logic

15 is "to read and process data in the identified packets from the

16 buffer, and to produce a data value dependent on contents of the

17 packet prior to transfer of the identified packets to the second

18 port by the first logic." Both claims include specific functional

19 language.

20   Because of the similarities between the claim addressed

21 in <u>Linear</u> and claim one, the court can see no reason to diverge

22 from the <u>Linear</u> analysis. The term "logic" defines some structure

23 and additional functional language. This functional language is

24 sufficiently detailed "to suggest structure to persons of ordinary

25 skill in the art." Id at 1320-21; see also <u>PCTEL, Inc v Agere</u>

26 <u>Systems, Inc</u>, 2005 WL 2206683 (ND Cal 2005) ("[S]election logic"

27 did not fall under paragraph six.). Accordingly, the court finds

28 that "logic" does not fall within 35 USC § 112(6).

29

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1   Having found that §112(6) does not apply, the court turns

2 next to construing the term "logic." 3Com proposes "circuitry

3 and/or programming." Doc #81 (05-0098) at 48. D-Link proposes

4 "processing resources configured to perform binary tasks where the

5 processing resources operate at speeds slower than the stream of

6 the incoming packet stream." Id at 48-49. Realtek has not

7 submitted a specific proposal.

8   The specification discloses a network interface:

9   with limited intelligence, implemented using a
         relatively slower, and lower cost embedded
10   processor, supported by dedicated hardware
         logic for the purposes of intercepting certain
11   packets being received via the network. In
         particular, the present invention provides an
12   interface that comprises the first port on
         which incoming data is received at the data
13   transfer rate of the network, a buffer coupled
         to the port that stores received packets, and a
14   second port coupled with the buffer through
         which transfer of packets to the host is
15   executed.

16 '884 patent 1:63-2:5. This language suggests that the first port

17 and buffer are "dedicated hardware." Claim one discloses that the

18 buffer is "coupled to the first port," suggesting that "coupled" is

19 a hardware-to-hardware connection. Id at 1:13. Claim one also

20 states that the second logic is "coupled with the buffer." Id at

21 1:22. Use of the word "coupled" with the second logic suggests the

22 second logic is also a hardware component.

23   Although the invention relates to a "lower cost embedded

24 processor," no such processor is explicitly recited by claim one.

25 The second logic is described in claim one as being used "to

26 process data," suggesting that the second logic is indeed a low-

27 cost processor. Claim two supports this view by stating that the

28 second logic comprises "a general purpose processor module." In

30

1 viewing all of the intrinsic evidence, 3Com's proposal is

2 impermissibly broad.

3   While 3Com's proposal is too broad, D-Link's proposal is

4 too narrow. The specification discusses a low-cost processor but

5 does not disclose that such a processor is required. Even if a

6 processor were required, there is no support for a specific

7 performance limitation such as "speeds slower than the stream of

8 the incoming packet stream" as D-Link's proposal imposes.

9   Although the evidence weighs heavily against a

10 construction of "programming," a construction of "circuitry" was

11 perfectly consistent. Accordingly, the court adopts the modified

12 proposal, "circuitry."

13

14   IV

15   The court has construed all disputed claim terms and

16 phrases of the patents-in-suit. Notwithstanding any further orders

17 the court may make regarding claim construction, this order shall

18 be deemed to be the "claim construction order" for scheduling

19 purposes. The parties shall appear for a case management

20 conference on February 6, 2007, at 2:00 pm.

21

22   SO ORDERED.

23

24 _____

25   VAUGHN R WALKER

26   United States District Chief Judge

27

28

31